

REMARKS

It is noted that the claim amendments herein are intended solely to more particularly point out the present invention for the Examiner, and not for distinguishing over the prior art or the statutory requirements directed to patentability.

It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Claims 5-20 and 27-35 are all of the claims pending in the present Application. Claim 35 has been added. Claims 1-4 and 26 are canceled above. Claims 15-20 are allowed. Applicant gratefully acknowledges the Examiner's indication that claims 2, 12, 26, 30, and 34 would be allowable if rewritten in independent format. Applicant has accordingly rewritten claim 12 in independent format and believes that claims 12, 30, and 34 are now in condition for allowance. It is noted that claims 2 and 26 are canceled above.

Claims 1, 3, and 4 stand rejected under 35 USC §102(b) as anticipated by US Patent 5,999,069 to Ushiroku. Cancellation of claims 1-4 renders this rejection moot.

Claims 5 and 6 stand rejected under 35 USC §102(b) as anticipated by JP 11-330904 to Wu. Claims 8-11, 13, 14, 27-29, and 31-33 stand rejected under 35 USC §102(b) as anticipated by US Patent 5,905,418 to Ehara et al.

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

As described and claimed, for example, by claim 5, the present invention is directed to an SAW device in which an SAW element is mounted. The SAW element includes a ladder-type circuit which has a serial arm formed between input and output terminals and which has a

AMENDMENTS TO THE DRAWINGS

The attached drawing sheet includes a change to Figures 29-35 to add the "Prior Art" label, as requested by the Examiner.

Attachments: Replacement Sheets (5 pages)

Annotated Sheet Showing Changes (5 pages)

plurality of parallel arms formed between the serial arm and a reference potential terminal.

The SAW device includes a plurality of first SAW resonators which are located in the serial arm and each of which has a predetermined resonant frequency and second SAW resonators which are located in the plurality of parallel arms, respectively, and each of which has an anti-resonant frequency corresponding with the predetermined resonant frequency of each first SAW resonator. A capacitance means has a predetermined electrostatic capacity and which is interconnected between said parallel arm positioned in the nearest position of the input terminal and the parallel arm positioned in the nearest position of the output terminal.

This aspect of the present invention provides one mechanism in which attenuation at frequencies outside the pass-band is increased without making an inductive component small. Moreover, since it does not depend upon a component due to the acoustic resonance phenomenon, the insertion loss is not increased.

Thus, this aspect provides one method of addressing the problem in the art in which attenuation is a tradeoff with insertion loss.

II. THE PRIOR ART REJECTIONS

The Examiner alleges that JP 11-330904 to Wu anticipates claims 5 and 6 and that US Patent 5,905,418 to Ehara anticipates claims 8-11, 13, 14, 27-29, and 31-33. Applicant respectfully disagrees.

First, relative to the rejection based on Wu for claims 5 and 6, Applicant believes that the claim amendment above to claim 5 eliminates the possibility of a broad interpretation for the terminology "located between" upon which the rejection currently of record is based.

However, it is noted that the capacitor in Wu clearly differs from that of the present invention. In Wu, the purpose is based on the SAW resonator, which becomes smaller in size,

so that the band-pass filter can reduce the bandwidth. The capacitance is connected to both or either of input/output terminals in series.

In contrast, in the present invention, the capacitance described in the claim is connected between two of the parallel arms. That is, it interconnects the node formed by the inductance element and the resonator in each of the two outside parallel arm SAW resonators. The effect of this capacitance in the present invention is quite different from the capacitance in Wu which reduces the bandwidth between the resonant and anti-resonant frequencies of the SAW resonator.

In the present invention, the capacitance means 24 exemplarily shown in Figure 4 converts the serial inductance L_p into parallel, so that it can operate the attenuation pole frequencies, which is conventionally decided by the parallel arm side SAW resonator 21 and the connected inductance L and L_p . Wu make no suggestion of such capacitance.

Hence, turning to the clear language of the claims, in Wu there is no teaching or suggestion of: "... capacitance means which has a predetermined electrostatic capacity and which is interconnected between said parallel arm positioned in a nearest position of said input terminal and said parallel arm positioned in a nearest position of said output terminal", as required by claim 5.

Therefore, Applicant respectfully requests that the Examiner reconsider and withdraw this rejection based on Wu.

Second, relative to the rejection based on Ehara, Applicant submits that the plain meaning of the claim language precludes the interpretation in the rejection currently of record for claim 8. The present invention differs structurally from the reference in the based circuit: the claimed present invention has one series arm and two parallel arms, while the reference has two series and parallel arms.

The embodiment in Ehara has not been described why inserting the ladder filter circuit into the polar type circuit makes the attenuation character steep. It is supposed that an improvement of attenuating amount is due to the increase in the degree of the tip opening impedance of the bisection circuit and the tip short circuit impedance.

By increasing the degree of a filter circuit, it is well known by conventional filter theory that the amount of attenuation is improvable, and Ehara showed it by calculation and it is also mentioned in Wu.

According to the rejection, Figure 25 of Ehara as the second embodiment describes that the tip opening impedance and tip short circuit impedance of the bisection circuits are the same degree. It is not described in Ehara that this second embodiment has the new improvement effect of attenuation relative to the first embodiment.

Moreover, a key aspect of the invention described in claim 8 is the improvement of the inductance Q. This technical aspect is not described in Ehara.

Hence, turning to the clear language of the claims, there is no teaching or suggestion of "...at least two single unit elements, each of said single unit elements including...."

For the reasons stated above, the claimed invention is fully patentable over the cited references.

III. FORMAL MATTERS AND CONCLUSION

The Examiner has objected to Figures 29-35 for failing to include a "Prior Art" label. Applicant includes a drawing revision identified above to address this concern.

The Examiner also objects to the drawings for failing to show the capacitance elements described by claim 10. Applicant respectfully traverses this objection, since there is no requirement that every claim element in every claim be identified on every possible drawing.

That is, the intent of the drawings is clarity of the invention to one of ordinary skill in the art. The drawings are not intended to serve as manufacturing drawings nor is it desirable to clutter up the drawings in order to label each and every claimed feature.

Even more important, Applicant has demonstrated the concept of adding capacitance in Figure 4 and described on page 19 how this capacitance could be implemented. The discussion on pages 26 and 27 for the capacitance of claim 10 is easily to understand in view of the example given in Figure 4. Therefore, since one of ordinary skill in the art would readily understand the capacitance implementation of this claim from the text on pages 26 and 27 and Figure 4, Applicant submits that adding the additional optional capacitances on the figures would cause more confusion than clarity.

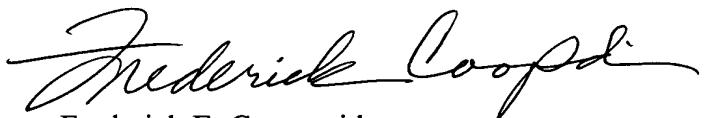
Accordingly, Applicant submits that there would be no need to add any additional information to accommodate claim 10 and that such addition would only cause confusion. Therefore, Applicant requests that the Examiner reconsider and withdraw this objection.

In view of the foregoing, Applicant submits that claims 5-20 and 27-34, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully submitted,



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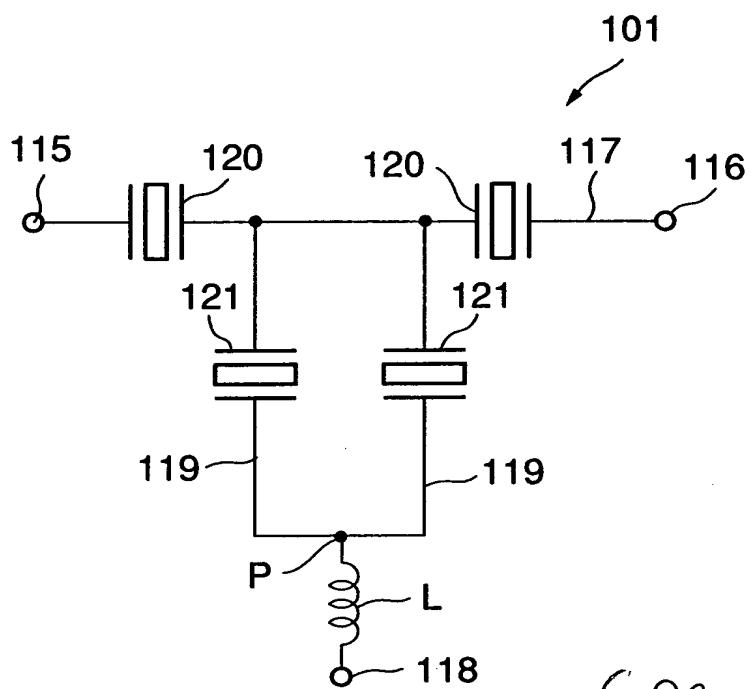


FIG. 29

(PRIOR ART)

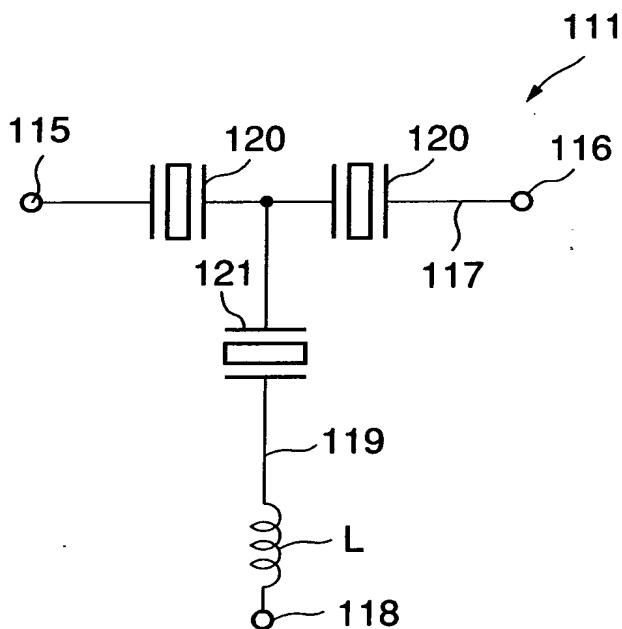


FIG. 30

(PRIOR ART)

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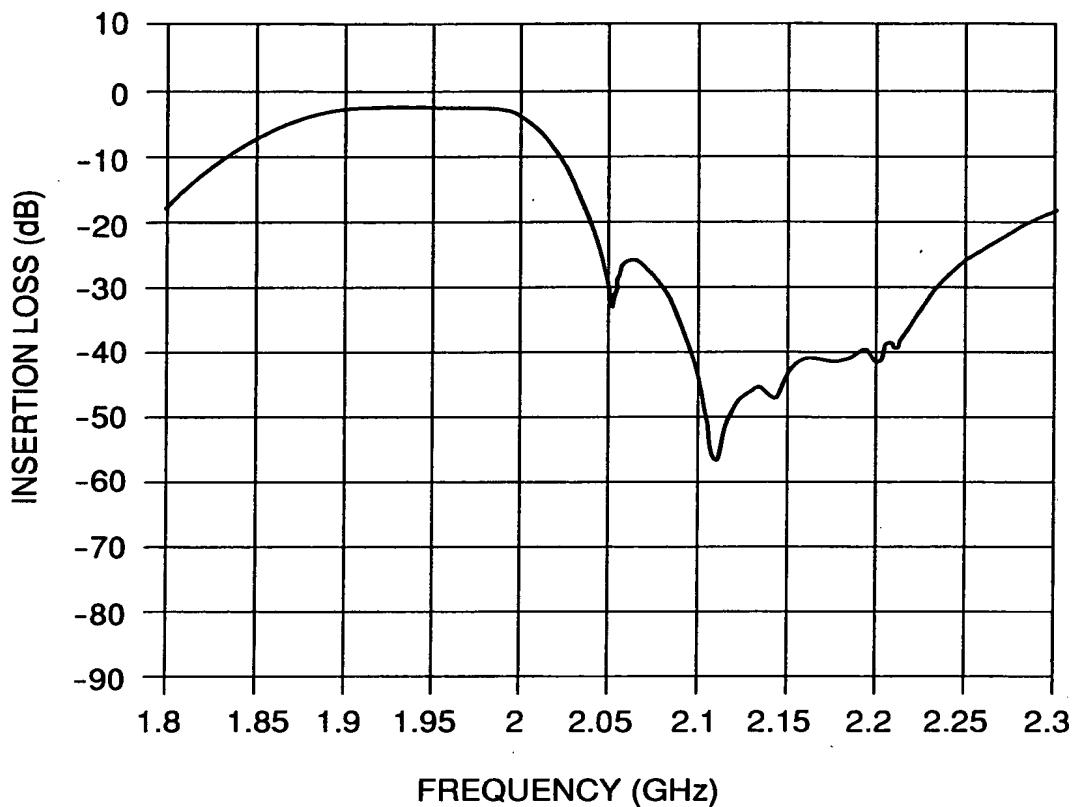


FIG. 31 (PRIOR ART)

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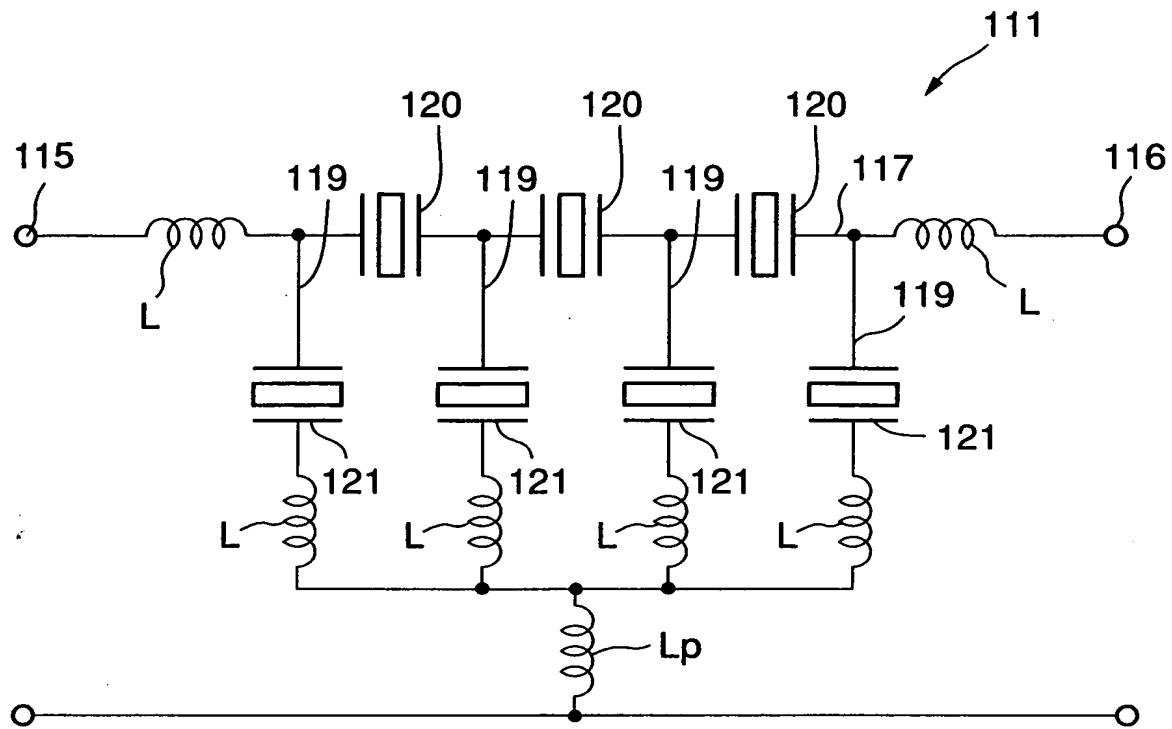


FIG. 32

(PRIOR ART)

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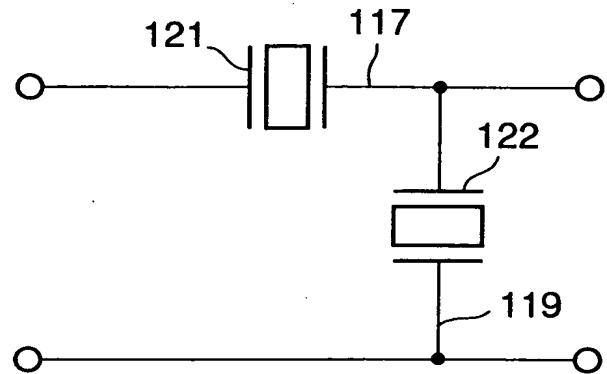


FIG. 33

(PRIOR ART)

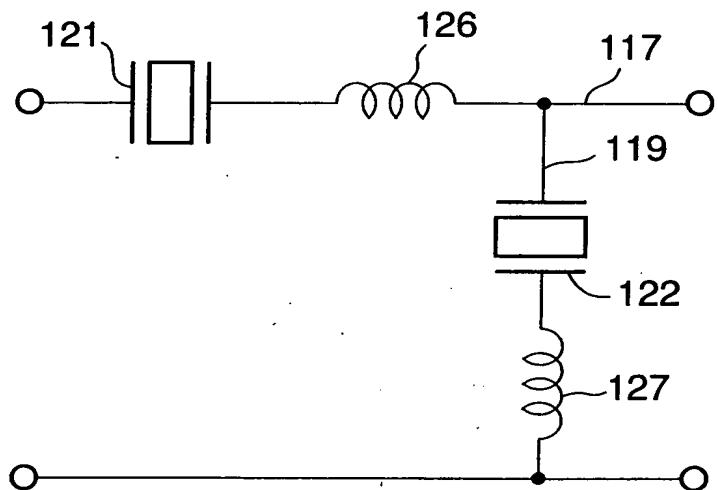


FIG. 34

(PRIOR ART)

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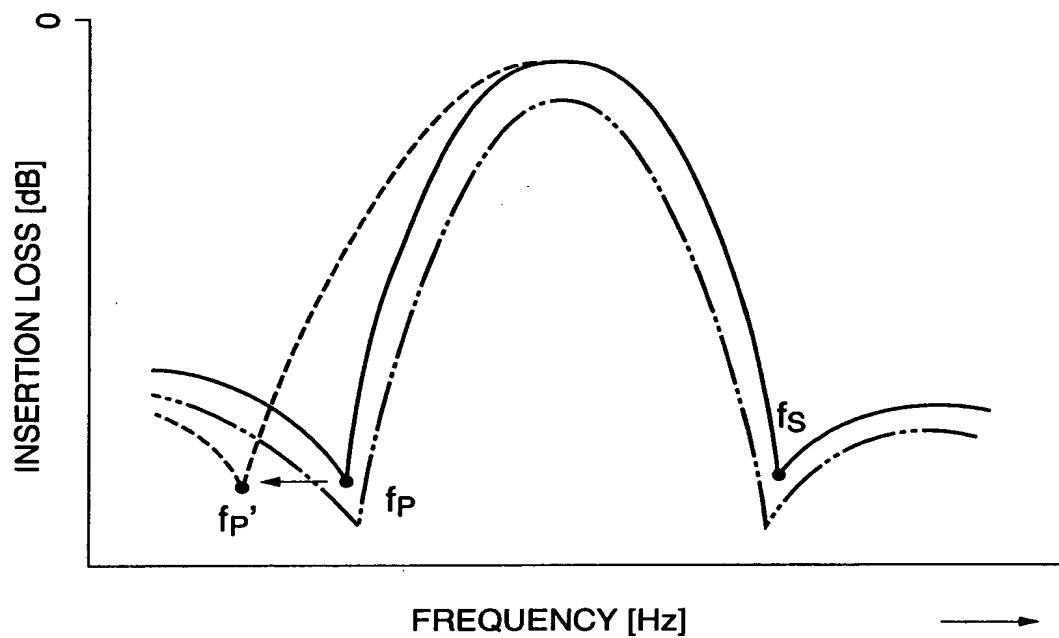


FIG. 35 (PRIOR ART)